SETTING WATER RATES IN WISCONSIN

Presentation to the Groundwater Advisory Committee

October 19, 2005

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Wisconsin Public Water Utilities

- 583 municipal and 8 private
- File 70 to 80 rate cases a year

Regulatory Compact

- “Safe and adequate service in exchange for just and reasonable compensation”

What stakeholders want from the ratemaking process

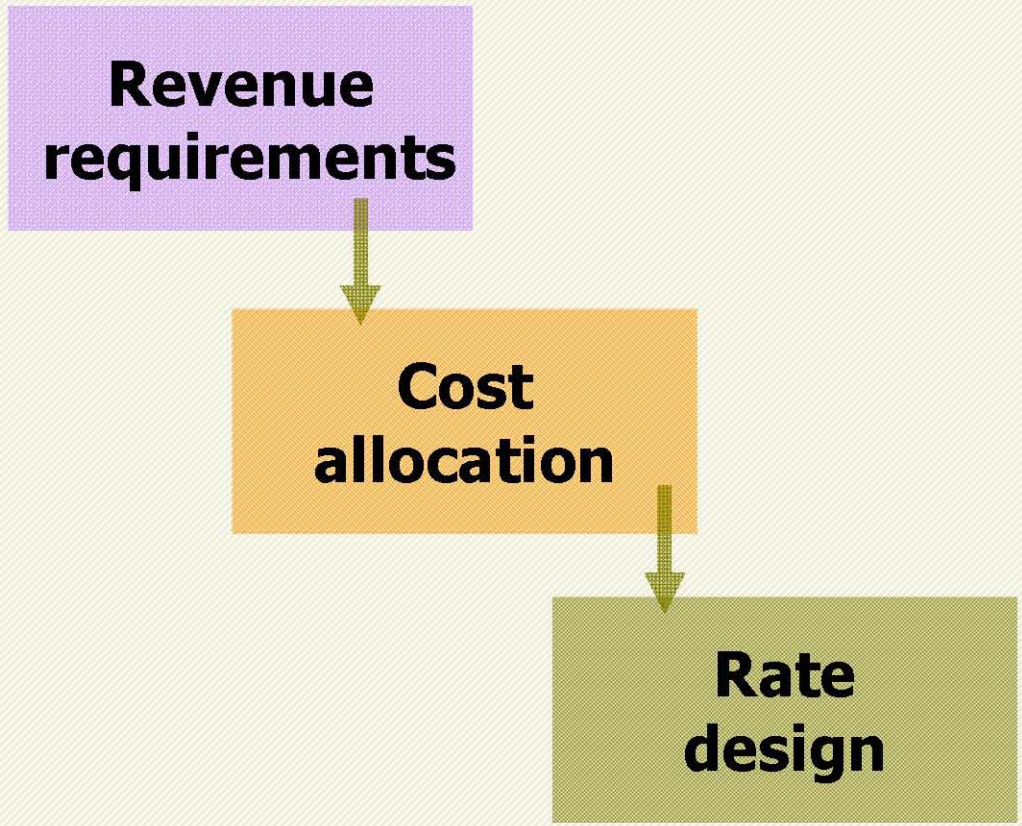
- **Utilities:** reasonable certainty; a fair return on investment (compensatory and non-confiscatory) to ensure financial viability; protection from ruinous competition
- **Customers:** Nondiscriminatory service at fair, reasonable, and affordable rates; protection from monopoly abuse (captive customers)
- **Regulators/Society:** Utility services that promote the public interest; price signals that encourage efficient use of resources and promote other social goals

The Process

- Utility files application
- Commission processes (90 day goal)
  - Design a rate proposal
  - Hold public hearing
  - Parties brief contested issues (as necessary)
  - Issue order
  - Send out new rates and rule
- Utility places new rates into effect

Key steps in the ratemaking process

1. Determine revenue requirements (cost assessment) for a test year
2. Allocate costs to customers based on usage patterns
3. Design rates to recover costs through rates and charges



Revenue Requirement

- Future Test Year – forward looking calendar year
- Expense components
  - Operation & maintenance
  - Depreciation
  - Taxes
  - Return

Methods of cost allocation

- Functional or average use
- Peak responsibility (coincident, non-coincident)
- Commodity-demand
- Base-extra capacity or average-excess
- Embedded-direct
- Fully-distributed
- Marginal-cost

AWWA Man.- M1, Principles of Water Rates, Fees, and Charges, Fifth Ed.

- Cost-of-Service Methodology
- Rate Design

Steps in cost allocation

- Functionalization
- Classification
- Allocation by usage
- Assignment to classes
- Design of rates and charges

Cost functionalization

- Source of supply and treatment
- Transmission and distribution
- Customer services
- General administration

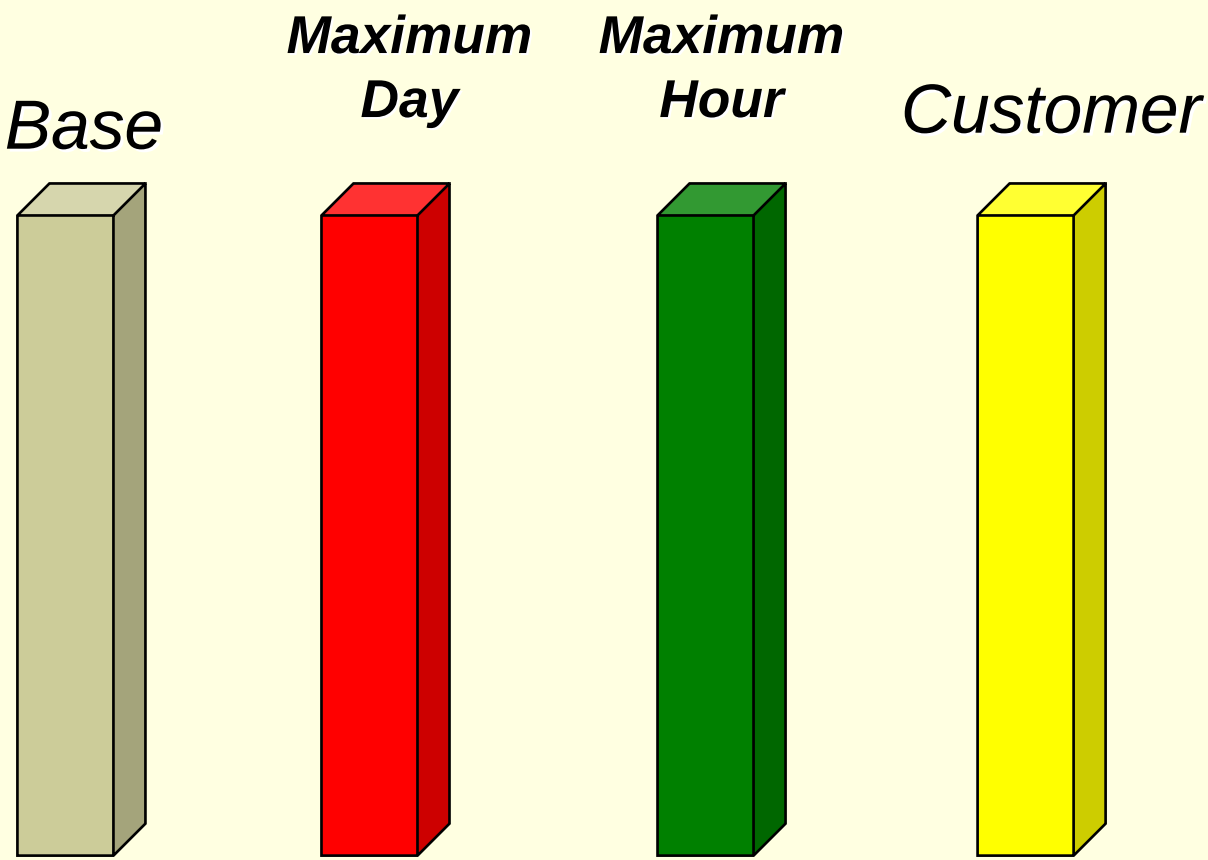
Cost classification

- Customer costs
  - Do not vary with usage
  - For example, cost of meter
- Commodity costs
  - Vary with usage
  - For example, cost of water or energy
- Capacity costs
  - Vary with aggregate usage over time
  - For example, treatment plants

STEPS IN THE COST OF SERVICE STUDY

- Allocate costs to functional components
  - Base
  - Extra Capacity - Maximum Day
  - Extra Capacity - Maximum Hour
  - Customer
  - Direct Fire Protection

ALLOCATION OF COSTS TO FUNCTION



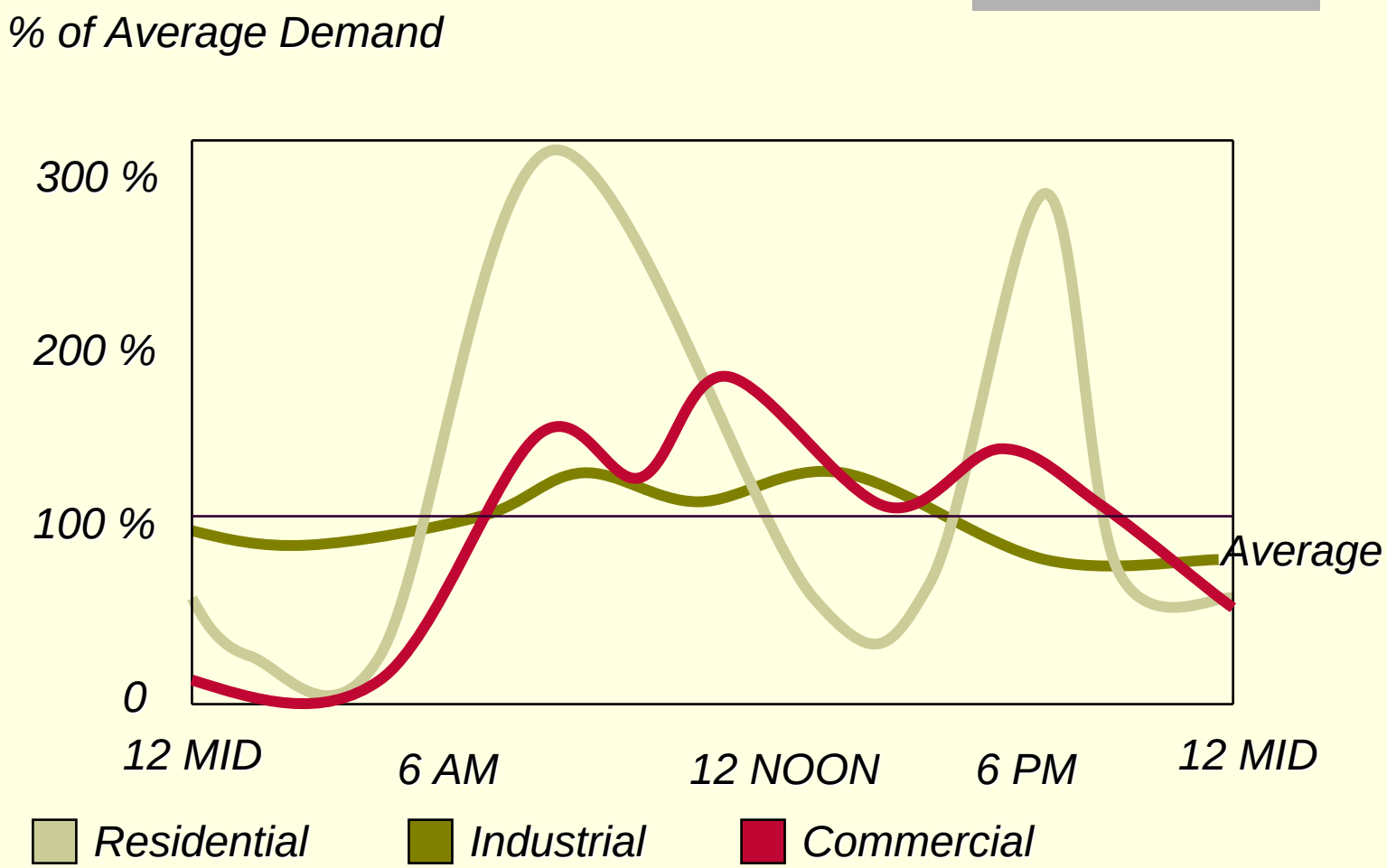
STEPS IN THE COST OF SERVICE STUDY

- 1. Allocate costs to functional components
- 2. Assign functional costs to customer classes

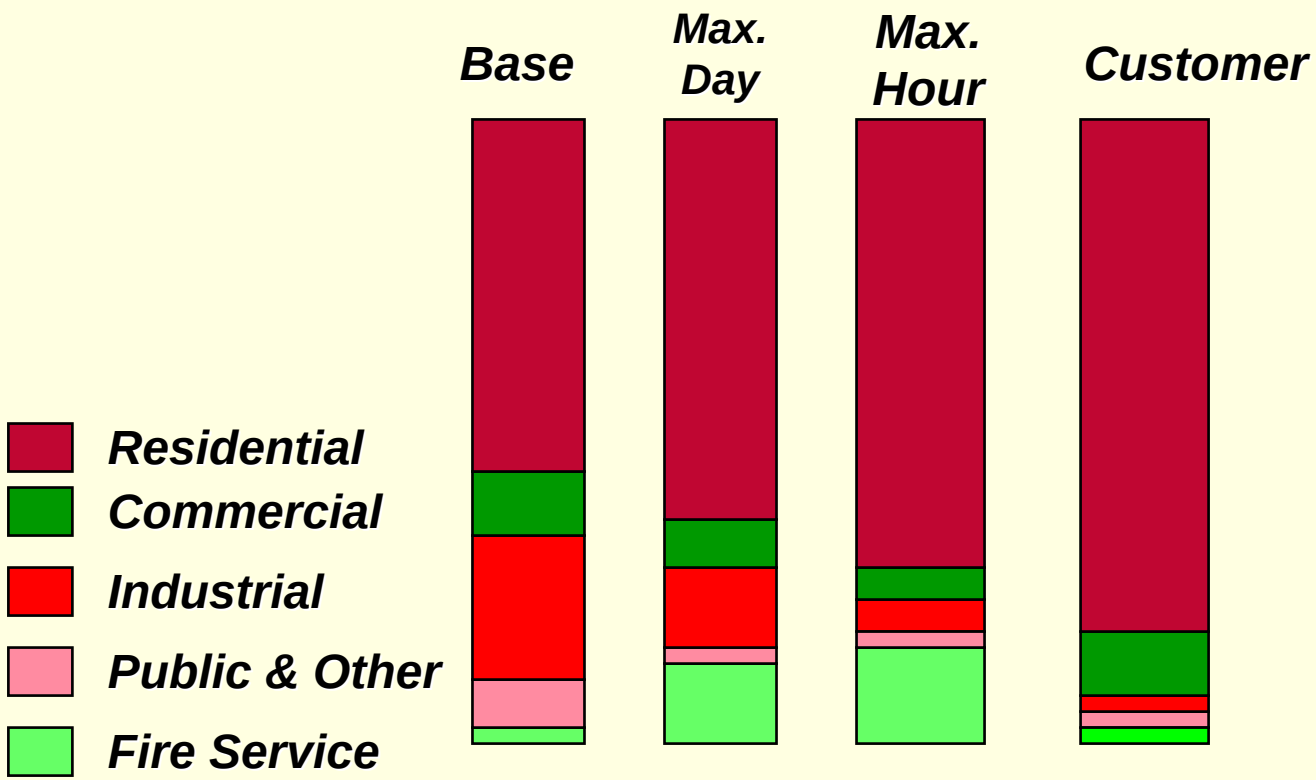
ASSIGN FUNCTIONAL COSTS TO CUSTOMER CLASSES

- Residential
- Commercial
- Industrial
- Public Authority
- Fire Protection

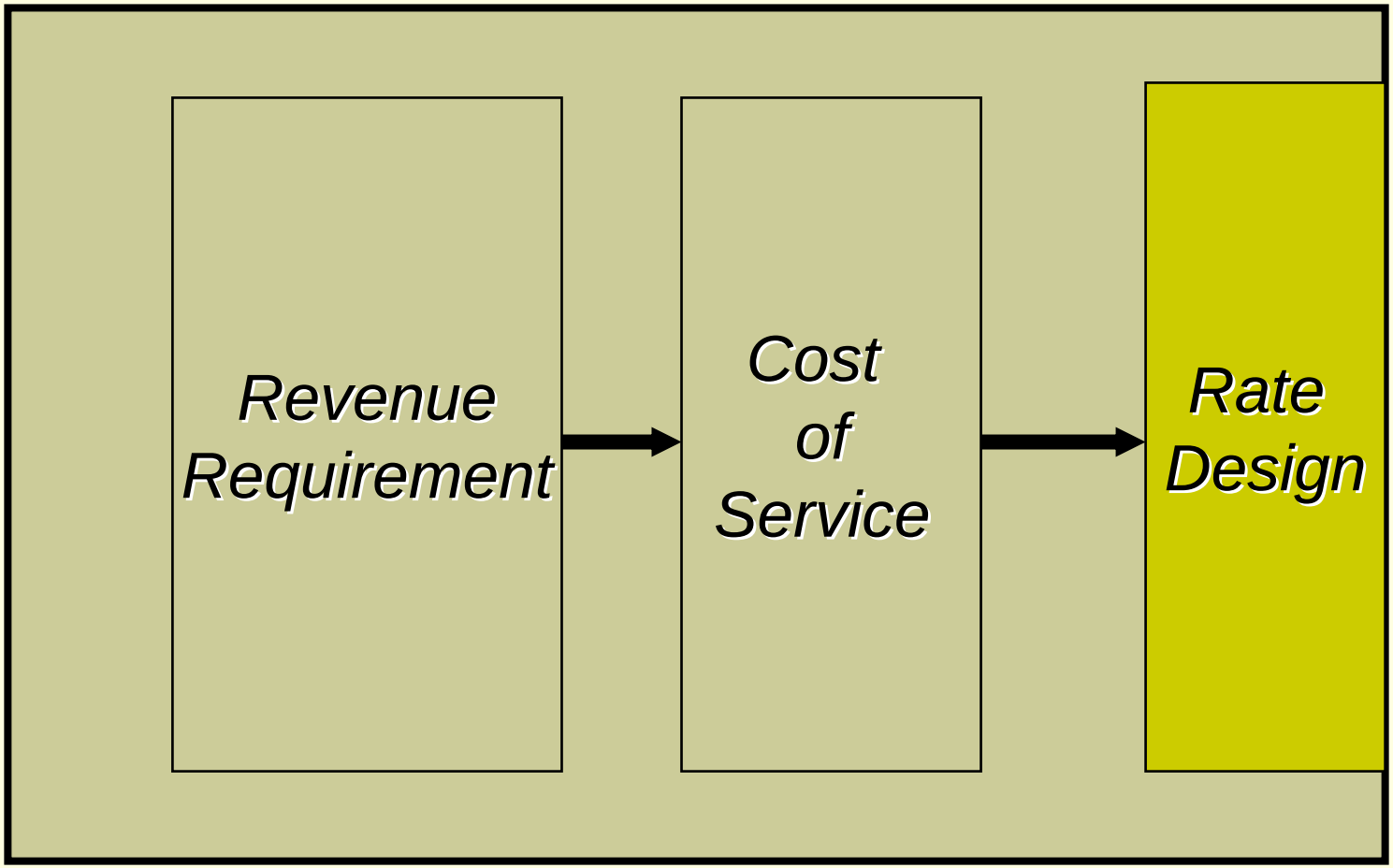
TYPICAL DEMAND PATTERNS



TYPICAL ASSIGNMENT OF FUNCTIONAL COST TO CUSTOMER CLASSES



OVERVIEW OF THE RATEMAKING PROCESS



WATER UTILITY SERVICES

- Fire Protection
- General Service (water supply)

GENERAL SERVICE RATES

- Residential
- Commercial
- Industrial
- Public Authority

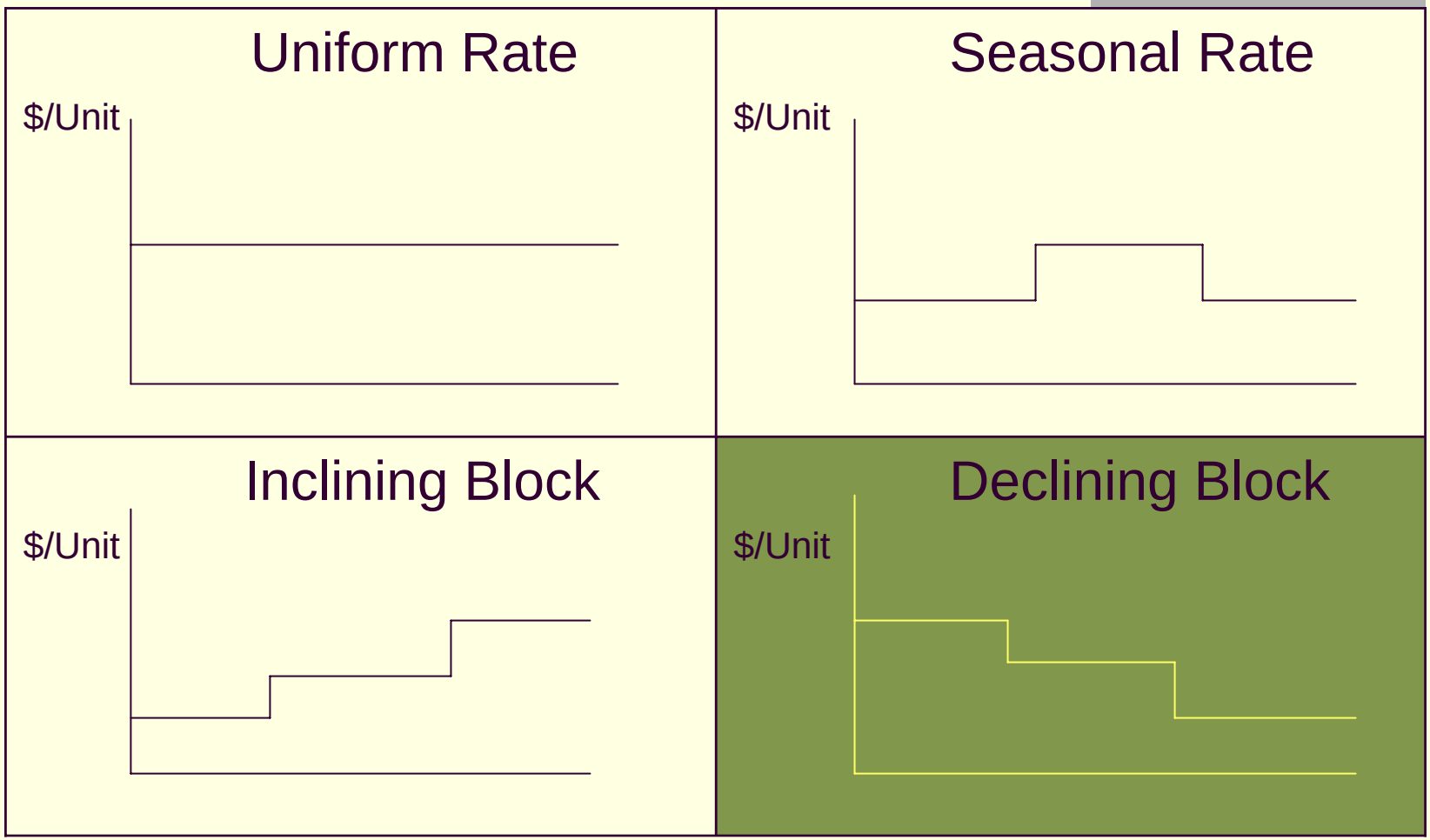
GENERAL SERVICE RATE FORMAT

- Two-Part Structure
  - Service charge or minimum bill based on meter size
  - Volume charge based on metered water usage

Basic rate-design options

- Uniform (uniform volume)
- Uniform by customer class
- Decreasing-block (declining)
- Increasing-block (inclining)
- Seasonal (peak management)
- Variations and combinations

RATE DESIGN FORMS

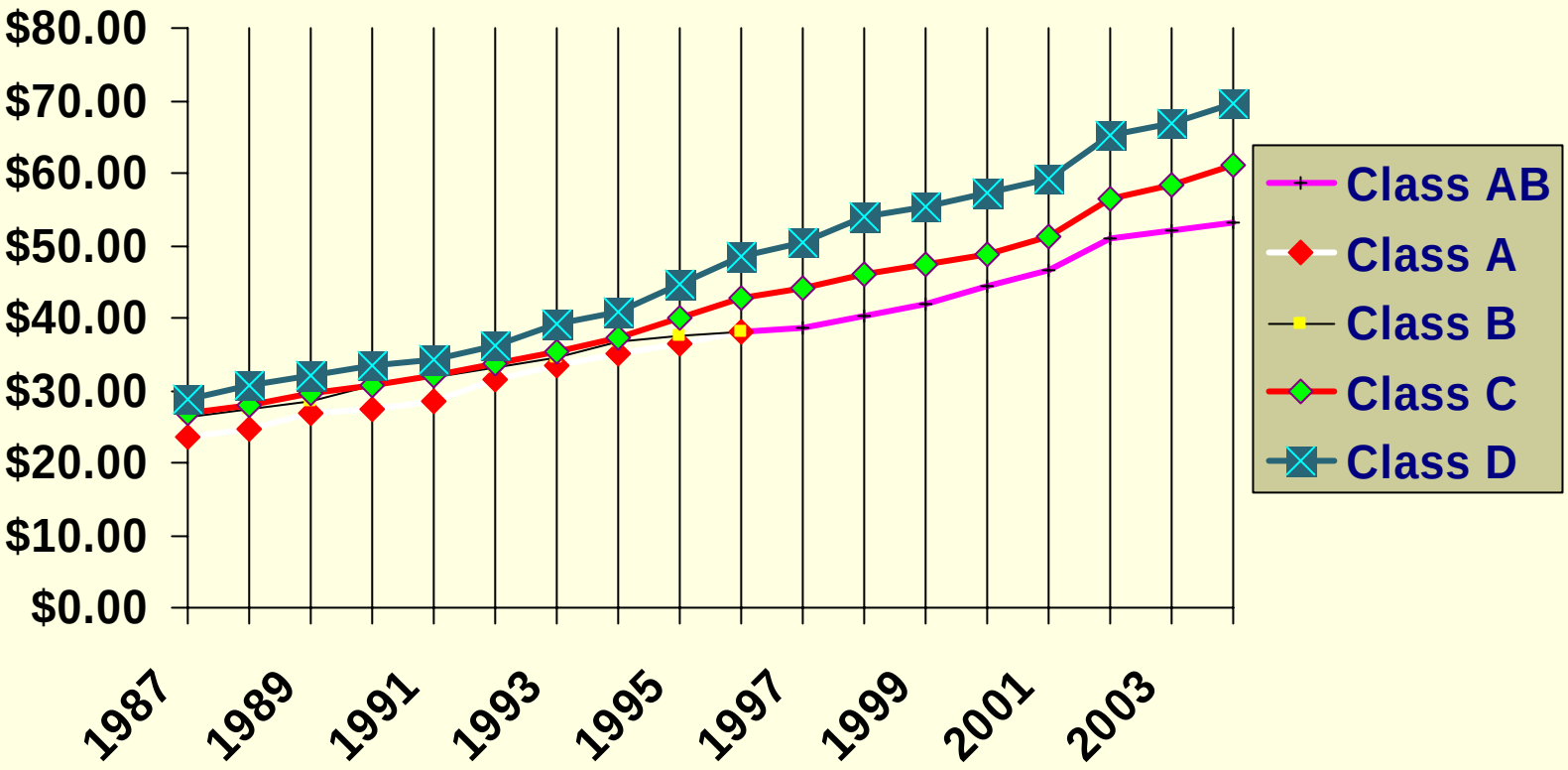


Ave. Cost:18,750 gals. & ¾ in. Meter

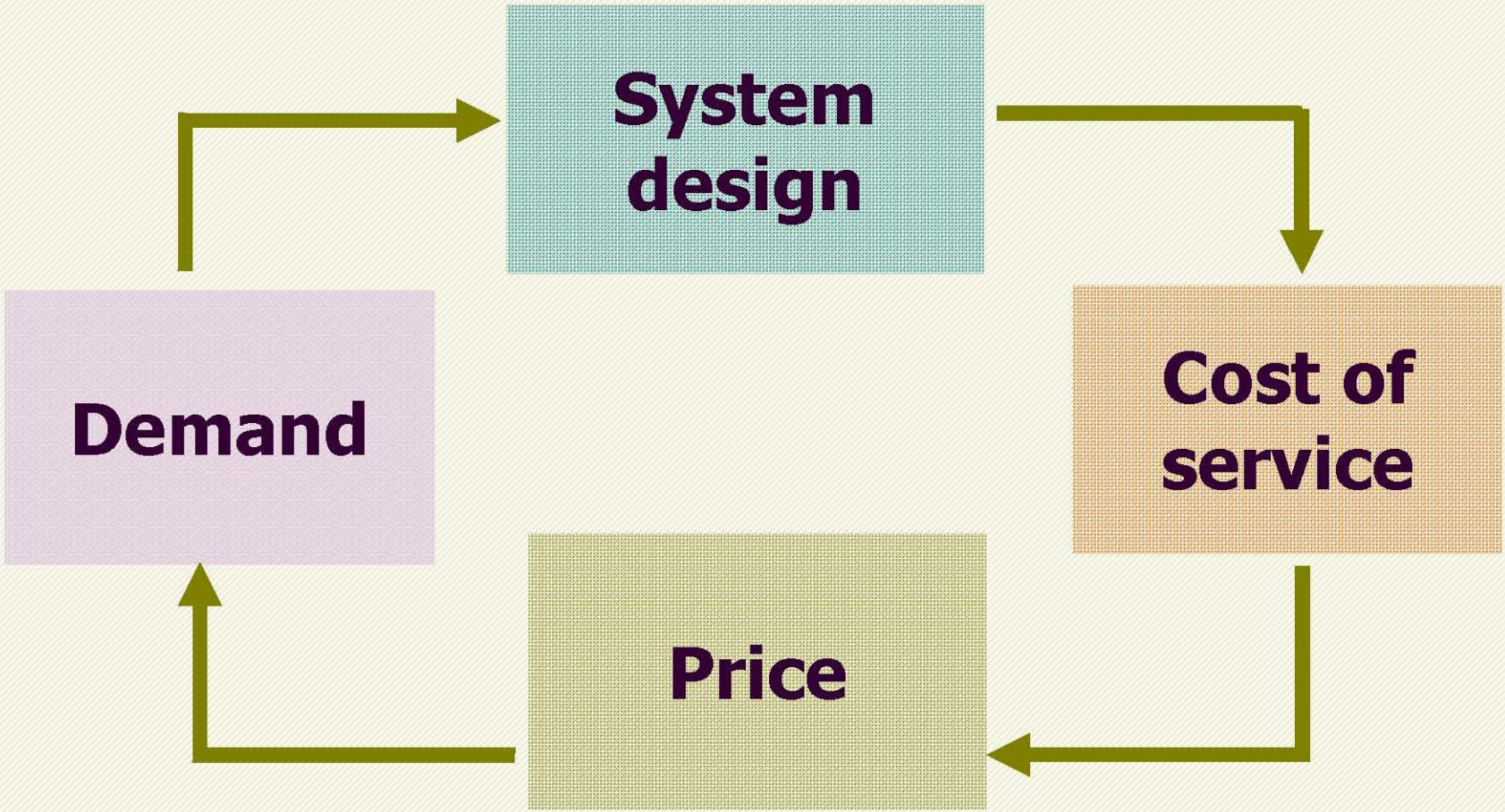
- Class AB …… $ 53.05
- Class C …… $ 61.00
- Class D …… $ 69.50
- Waukesha – proposed … $ 48.49

AVERAGE CHARGE FOR 18,750 GALLONS OF WATER PER QUARTER

(Wisconsin Water Utilities)



The role of price in utility services



Price elasticity of demand

- Elasticity = responsiveness or sensitivity
- Measured by: $\frac{\%\text{ Change in usage}}{\%\text{ Change in price}}$
- Demand is *more* elastic for: luxury goods, goods with reasonable substitutes, over longer time frames
- Demand is *less* elastic for: necessities, goods without reasonable substitutes, some very inexpensive goods, over shorter time frames

Sample elasticities (general)

SALT, MATCHES, TOOTHPICKS	.10	Relatively inelastic
NATURAL GAS (SHORT-RUN)	.10	
AIRLINE TRAVEL (SHORT-RUN)	.10	
GASOLINE (SHORT-RUN)	.20	
COFFEE	.25	
NATURAL GAS (LONG-RUN)	.50	
PHYSICIAN SERVICES	.60	
GASOLINE (LONG-RUN)	.70	
MOVIES	.90	
PRIVATE EDUCATION	1.1	Unitary elasticity
HOUSING (OWNER-OCCUPIED)	1.2	
RESTAURANT MEALS	2.3	Relatively elastic
AIRLINE TRAVEL (LONG-RUN)	2.4	
FRESH GREEN PEAS	2.8	
CHEVROLET AUTOMOBILES	4.0	
FRESH TOMATOES	4.6	

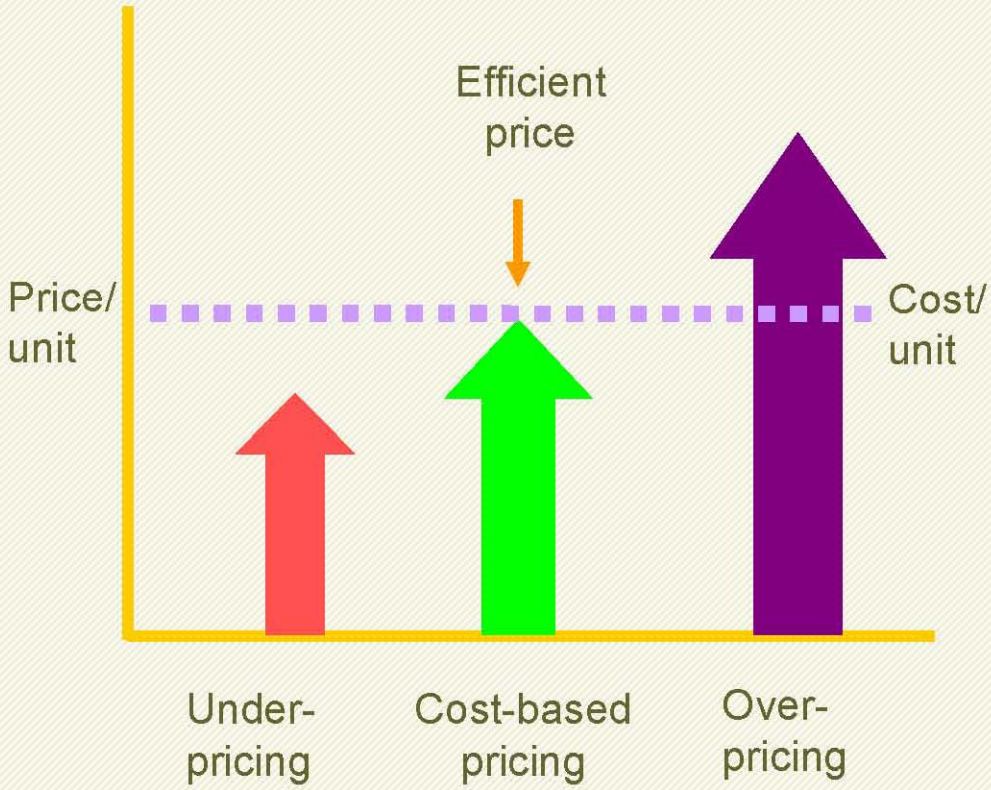
Source: Gwartney and Stroup, 1997

Price elasticity for utilities

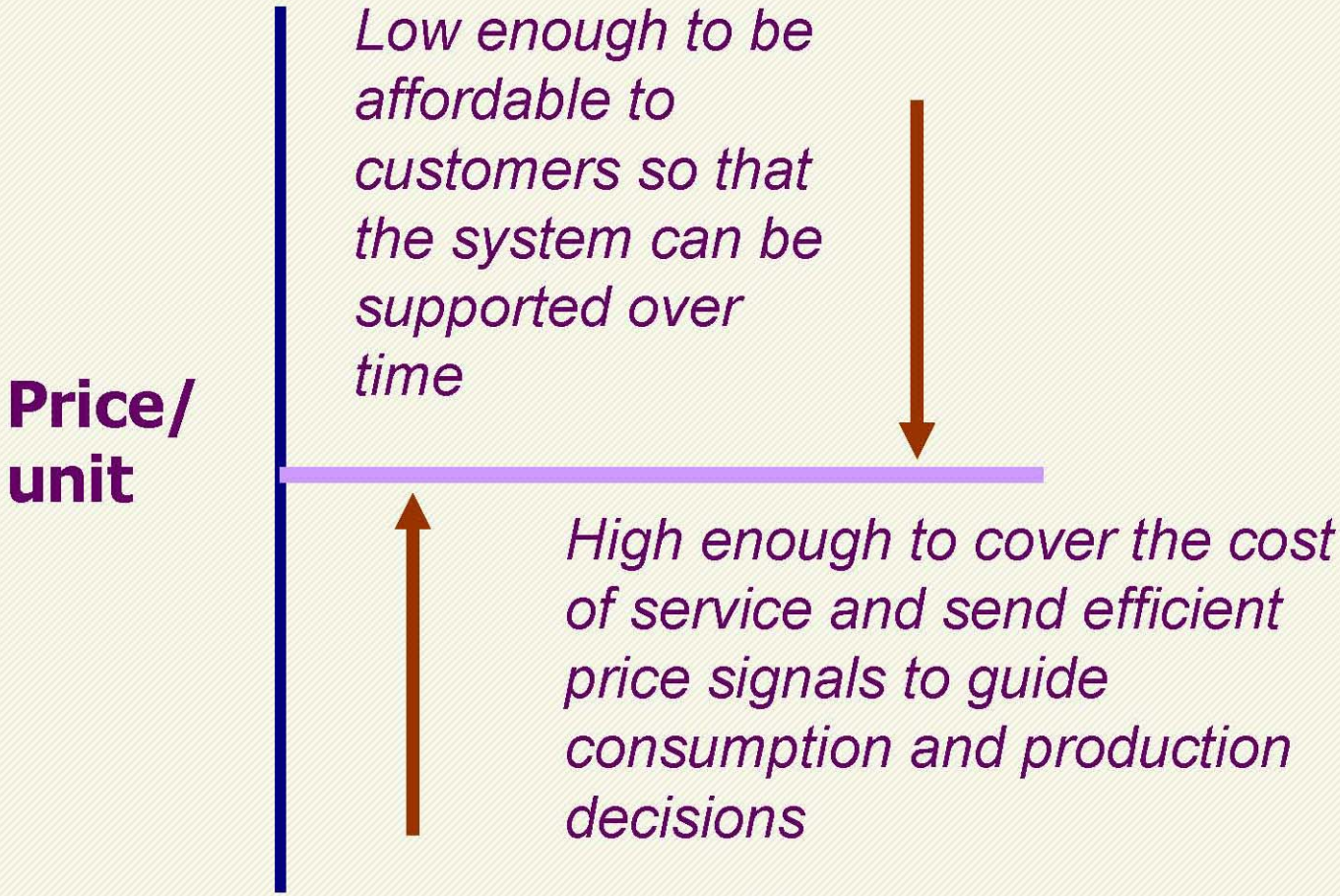
- Utility services that are basic necessities are relatively price-inelastic; that is, price changes do not necessarily induce significant usage reductions
- Elasticity varies by customer class or type of usage
  - Water/energy: nonresidential can be > residential
  - Telecom: residential can be > nonresidential
- Elasticities matter in ratemaking because *nonzero* elasticities suggest that a change in price will affect usage and therefore utility revenues

Pricing and efficiency

- An important criterion, esp. for resource allocation and use
- Prices too low encourage excess (wasteful) usage, which in turn can lead to too much investment in capacity
- Prices too high discourage use and can be harmful to consumers



Pricing and affordability



Multi-tiered rate (L.A. water)

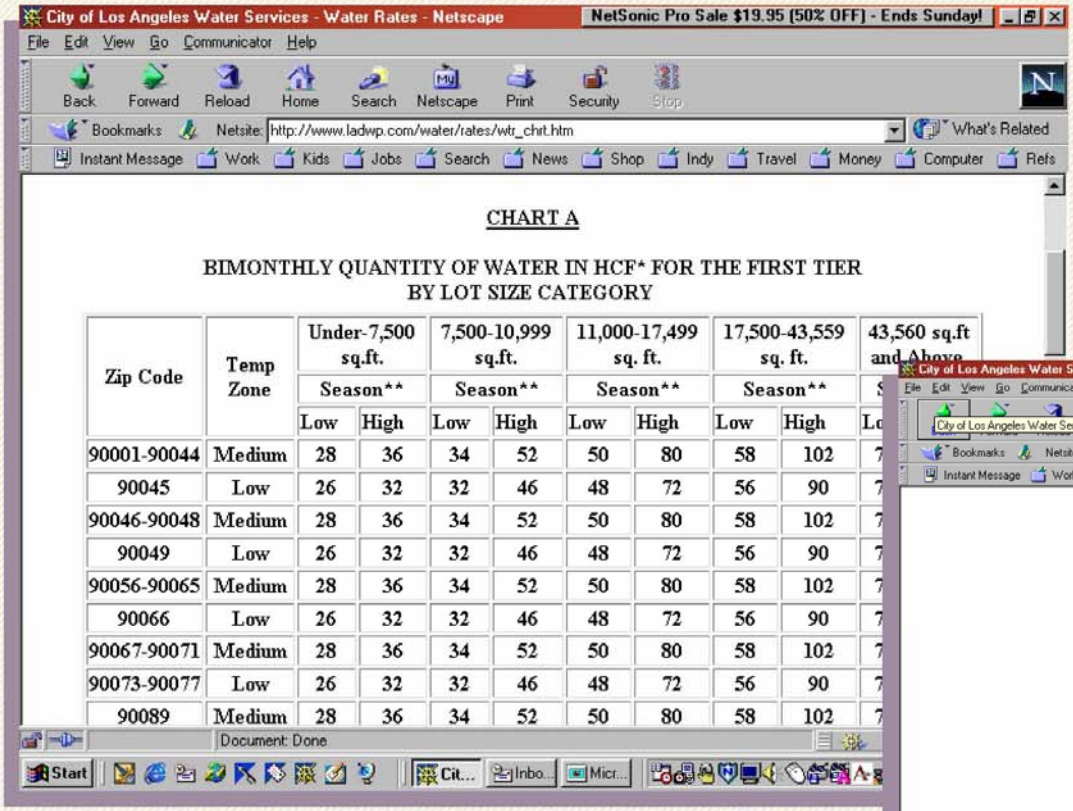


CHART A

BIMONTHLY QUANTITY OF WATER IN HCF* FOR THE FIRST TIER BY LOT SIZE CATEGORY

Zip Code	Temp Zone	Under-7,500 sq.ft. Season**		7,500-10,999 sq.ft. Season**		11,000-17,499 sq. ft. Season**		17,500-43,559 sq. ft. Season**		43,560 sq.ft and Above
		Low	High	Low	High	Low	High	Low	High	Lo
90001-90044	Medium	28	36	34	52	50	80	58	102	7
90045	Low	26	32	32	46	48	72	56	90	7
90046-90048	Medium	28	36	34	52	50	80	58	102	7
90049	Low	26	32	32	46	48	72	56	90	7
90056-90065	Medium	28	36	34	52	50	80	58	102	7
90066	Low	26	32	32	46	48	72	56	90	7
90067-90071	Medium	28	36	34	52	50	80	58	102	7
90073-90077	Low	26	32	32	46	48	72	56	90	7
90089	Medium	28	36	34	52	50	80	58	102	7

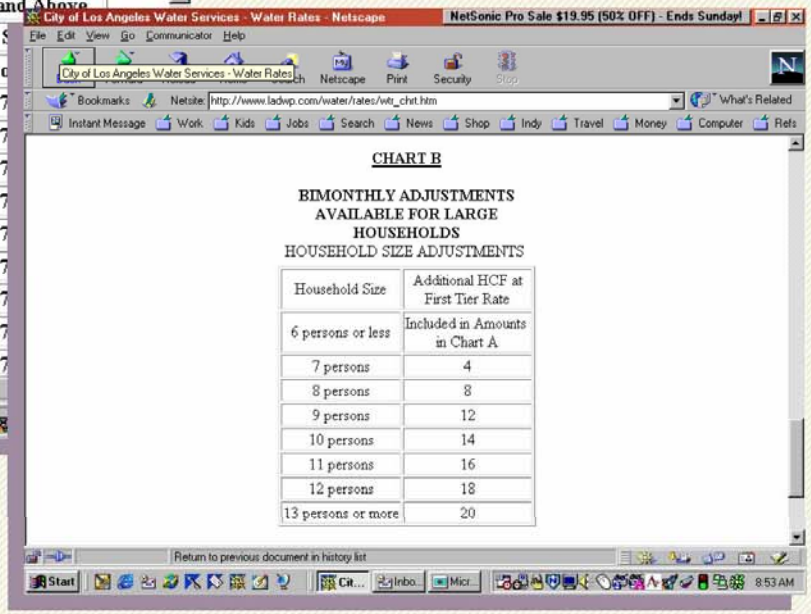


CHART B

BIMONTHLY ADJUSTMENTS AVAILABLE FOR LARGE HOUSEHOLDS

HOUSEHOLD SIZE ADJUSTMENTS

Household Size	Additional HCF at First Tier Rate
6 persons or less	Included in Amounts in Chart A
7 persons	4
8 persons	8
9 persons	12
10 persons	14
11 persons	16
12 persons	18
13 persons or more	20

Zip code, temperature zone, lot size, season, and household size

THE END